wherein unpaired bonding electrons on the surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the hydrogen-containing atmosphere.

12. (Three Times Amended) The method of forming a crystalline film, comprising [the steps of]:

forming a semiconductor thin film having a surface on a substrate; and

crystallizing at least a surface layer of the semiconductor thin film by [selectively] applying energy to the surface of the semiconductor thin film, [such that] at least the surface layer of the semiconductor thin film is melted by the applied energy and crystallized by cooling solidification under an atmosphere containing a gas containing the component element of the semiconductor thin film and hydrogen,

wherein unpaired bonding electrons on the surface of the semiconductor thin film during the cooling solidification are terminated by hydrogen atoms in the atmosphere.

20. (Three Times Amended) A method of forming a crystalline film, comprising [the steps of]:

forming a thin film on a substrate; and

crystallizing at least a surface layer of the thin film by supplying high energy to the thin film under a hydrogen-containing atmosphere, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the hydrogen-containing atmosphere, wherein:

crystallizing is carried out in a high energy supply apparatus which includes a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber includes an introduction window that introduces the high energy into the supply chamber; and

the high energy is supplied to the thin film with the introduction window disposed at a location resistant to adherence of components of the thin film when the high energy is supplied to the thin film.

25. (Three Times Amended) A method of forming a crystalline film, comprising [the steps of]:

forming a thin film on a substrate; and

crystallizing at least a surface layer of the thin film by supplying high energy to the thin film under a hydrogen-containing atmosphere, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the hydrogen-containing atmosphere, wherein:

crystallizing is carried out in a high energy supply apparatus which includes a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film, wherein:

the thin film is set in the supply chamber;

the supply chamber includes a wall and an introduction window provided in a portion of the wall, the introduction window introduces the high energy into the chamber; and

the high energy is supplied to the thin film with a distance between the introduction window and the thin film larger than a shortest distance between the wall and the thin film.

30. (Three Times Amended) A method of forming a crystalline film, comprising [the steps of]:

forming a thin film on a substrate; and

crystallizing at least a surface layer of the thin film by supplying high energy to the thin film under a hydrogen containing atmosphere, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the hydrogen-containing atmosphere, wherein:

crystallizing is carried out in a high energy supply apparatus which includes a generation source for generating the high energy and a supply chamber for a supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber includes an introduction window that introduces the high energy into the supply chamber; and

the high energy is supplied to the thin film under a pressure in the vicinity of the introduction window that is higher than a pressure in the vicinity of the thin film in the supply chamber.

35. (Three Times Amended) A method of forming a crystalline film, comprising [the steps of]:

forming a thin film on a substrate; and

crystallizing at least a surface layer of the thin film by supplying high energy to the thin film under a hydrogen-containing atmosphere, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the hydrogen-containing atmosphere, wherein:

crystallizing is carried out in a high energy supply apparatus which includes a generation source for generating the high energy and supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber includes an introduction window that introduces the high energy into the supply chamber, and an exhaust port for exhausting air in the supply chamber; and

the high energy is supplied to the thin film under (i) a pressure in the vicinity of the introduction window that is higher than a pressure in the vicinity of the thin film, and (ii) a pressure in the vicinity of the thin film that is higher than a pressure in a vicinity of the exhaust port in the supply chamber.

40. (Three Times Amended) A method of forming a crystalline film, comprising [the steps of]:

forming a thin film on a substrate;

crystallizing at least a surface layer of the thin film by supplying high energy to the thin film under a hydrogen-containing atmosphere, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the hydrogen-containing atmosphere, wherein:

crystallizing is carried out in a high energy supply apparatus which includes a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber includes an introduction window that introduces the high energy into the supply chamber;

the thin film is irradiated with the high energy introduced into the supply chamber through the introduction window along a irradiation path in the supply chamber;

a part of the high energy enters the thin film, and another part of the high energy is reflected from the thin film along a reflection path in the supply chamber;

a gas flow is present in the supply chamber; and

the high energy is supplied to the thin film with (i) the gas flow from the introduction window to the thin film in approximately the same direction as the irradiation path, and (ii) the gas flow from the thin film in approximately the same direction as the reflection path.

46. (Three Times Amended) A method of forming a crystalline film, comprising [the steps of]:

forming a thin film on a substrate; and

crystallizing at least a surface layer of the thin film by supplying high energy to the thin film under a hydrogen-containing atmosphere, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the hydrogen-containing atmosphere, wherein:

crystallization is carried out in a high energy supply apparatus that includes a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber has an introduction window provided in a portion of the wall of the supply chamber, for introducing the high energy into the supply chamber;

the thin film is irradiated with the high energy introduced into the supply chamber through the introduction window along a irradiation path assumed in the supply chamber; and

the high energy is supplied to the thin film with the normal direction of the thin film shifted by an angle from the direction of the irradiation path.

56. (Three Times Amended) A method of forming a crystalline film, comprising [the steps of]:

forming a thin film on a substrate; and

crystallizing at least a surface layer of the thin film by supplying high energy to the thin film under a hydrogen-containing atmosphere, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the hydrogen-containing atmosphere, wherein:

crystallization is carried out in a high energy supply apparatus including a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber has an introduction window provided in a portion of the wall of the supply chamber, for introducing the high energy into the supply chamber;

when a first position of the thin film is irradiated with the high energy introduced into the supply chamber, part of the high energy enters the thin film; and

another part of the high energy is reflected by the thin film to form reflected energy that irradiates a second position of the thin film through a course change of the reflected energy.